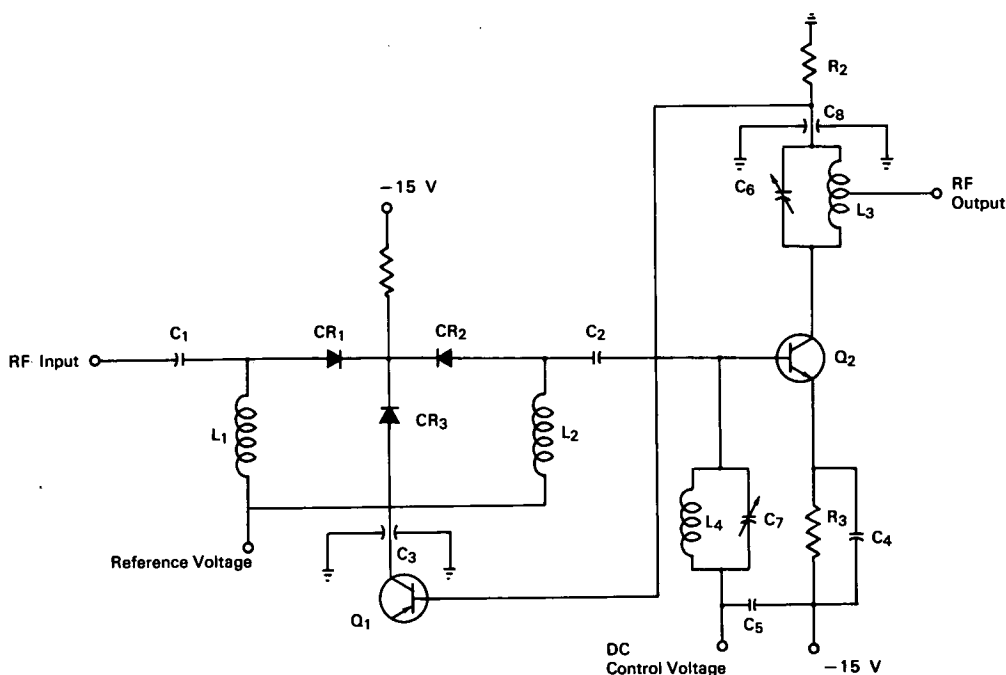


NASA TECH BRIEF



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Automatic Gain Control Circuit Handles Wide Input Range



The problem:

Radio receivers that must handle a wide range of input signal levels must use some form of automatic gain control (AGC) to prevent overloading the final output stage. Presently available circuits are limited to maximum undistorted input signal strength of no more than 50 millivolts rms.

The solution:

An AGC circuit capable of handling input signals of the order of 1 volt rms. The transistorized circuit maintains a relatively constant output by varying attenuation of the input signal.

How it's done:

The input signal is coupled through C1, to the variable attenuator made up of diode tee-pad network CR1, CR2, and CR3. The attenuator is prebiased in the low-attenuation condition by a reference voltage coupled through rf chokes L1 and L2. The attenuator control elements are R1, C3, and Q1. Output of the attenuator is coupled through C2 to reflex amplifier Q2. The amplified rf output is taken from resonant tank circuit L3-C6. The dc control voltage is fed through blocking filter L4-C7 to the dc input of reflex amplifier Q2. The amplified dc output voltage is developed

(continued overleaf)

across collector load resistor R_2 and is fed to attenuator control transistor Q_1 . Emitter resistor R_3 , in conjunction with R_2 determines the dc gain of Q_2 , while C_8 , C_4 , and C_5 act as ac bypass condensers to maintain the rf gain of Q_2 as high as possible.

Note:

Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Manned Spacecraft Center
P.O. Box 1537
Houston, Texas, 77001
Reference: B66-10089

Patent status:

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Source: Stanley H. Black
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under contract to
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(MSC-166)